<div align="center">**REMARKS**</div>

Reconsideration of this application as amended is respectfully requested. The enclosed is responsive to the Examiner's Final Office Action mailed on September 14, 2007 and is being filed pursuant to a Request for Continued Examination (RCE) as provided under 37 CFR 1.114. At the time the Examiner mailed the Office Action claims 1-27 were pending. By way of the present response Applicant has: 1) amended claims 1, 8, 10, 12, 13, 17, 18, and 20; 2) added no claims; and 3) canceled claims 22-27. As such, claims 1-21 are pending. Applicant respectfully requests reconsideration of the present application and the allowance of all claims now presented. Applicant submits that no new matter has been added.

I.   Claim Rejections 35 U.S.C. §103

Claims 1, 5, 6, 13, 17, 18, 22-24 and 25-27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Liao, et al., U. S. Publication No. 2002/0062424 (hereinafter "Liao") in view of Thelin, et al., U. S. Patent No. 6,961,814 (hereinafter "Thelin").

Regarding claim 1, the Office Action stated that

> Liao et al. discloses a method in a Constant Access Time Bounded (CATB) cache, comprising:
> reserving a first number of unallocated lines in the cache for pinned data (i.e., locked cache), the first number being less than the number of lines in the cache; and if data needs to be inserted into the cache as pinned data (i.e., locked cache) ([0018] and [0022]).
> ...
> However, Liao et al. does not specifically teach selecting a line from the lines reserved for pinned data; storing the data in the line; and inserting the line into a search group of the CATB cache.
> Thelin et al. teaches selecting a line from the lines reserved for pinned data (Fig. 2B: Free Links); storing the data in the line;

and inserting the line into a search group of the CATB cache (Fig.8 and co1.6, lines 17-29: updating linked lists reads on this limitation).

(Office Action mailed 9/14/2007, page 3).

Applicant respectfully disagrees with the Office Action's assertion. Claim 1, as amended, reads as follows:

In a **Constant Access Time Bounded (CATB) cache**, a method comprising:
reserving a first number of unallocated lines in the cache for **pinned data**, the first number being less than the number of lines in the cache; and
if data needs to be inserted into the cache as pinned data,
selecting a line from the lines reserved for pinned data;
storing the data in the line; and
inserting the line into a search group of the CATB cache, <u>wherein a constant number of non-pinned lines are maintained within the search group</u>.

(Claim 1) (emphasis added).

Applicant respectfully submits that the combination of Liao and Thelin fails to disclose the limitations of claim 1. The combination does not teach or suggest a Constant Access Time Bounded (CATB) cache. Furthermore, the combination does not teach reserving a first number of unallocated lines in the cache for pinned data. Liao, and thus the combination, teaches "a portion of the cache cannot be altered by the hardware cache management system" and that this "locked" portion of the cache is controlled by software instead. (Liao, paragraphs [0018] and [0022]). The combination teaches a different method of altering a portion of the cache, but does not teach or suggest pinned data.

Additionally, the combination fails to disclose "inserting the line into a search group of the CATB cache, wherein a constant number of non-pinned lines are

maintained within the search group." (Claim 1). In contrast, Thelin, and thus the combination, teaches allocating a new cache segment and decreasing the "COUNT field" by 4. (Thelin, col. 6, lines 17-29). The combination fails to teach that the cache is a CATB cache, that the line is inserted into a search group of the CATB cache, and that a constant number of non-pinned lines are maintained as the pinned line is inserted.

Accordingly, Applicant respectfully requests withdrawal of the rejections of claim 1 under 35 U.S.C. § 103(a) as being unpatentable over Liao and Thelin.

Given that claims 5 and 6 are dependent claims with respect to claim 1 and add additional limitations, Applicant submits that claims 5 and 6 are not obvious in view Liao and Thelin under 35 U.S.C. §103(a) for the reasons stated above.

The Office Action rejected claim 13 using the same language as above for the rejection of claim 1. Although amended claim 13 differs from claim 1, it contains limitations similar to claim 1 and thus is patentable over Liao and Thelin for at least the reasons stated above. Accordingly, Applicant respectfully requests withdrawal of the rejections of claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Liao and Thelin.

Given that claims 17 and 18 are dependent claims with respect to claim 13 and add additional limitations, Applicant submits that claims 17 and 18 are not obvious in view Liao and Thelin under 35 U.S.C. §103(a) for the reasons stated above.

Claims 2, and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over Liao, in view of Thelin and in further view of Norman, U. S. Patent No. 6,292,868 (hereinafter "Norman").

Given that claims 2 and 14 are dependent claims with respect to claims 1 and 13 and add additional limitations, Applicant submits that claims 2 and 14 are not obvious in view Liao, Thelin, and Norman under 35 U.S.C. §103(a) for the reasons stated above.

Claims 3, 4, 15 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Liao in view of Thelin, and in further view of Norman and Wong, U. S. Patent No. 7,130,979 (hereinafter "Wong").

Given that claims 3, 4, 15, and 16 are dependent claims with respect to claims 1 and 13 and add additional limitations, Applicant submits that claims 3, 4, 15, and 16 are not obvious in view Liao, Thelin, Norman, and Wong under 35 U.S.C. §103(a) for the reasons stated above.

Claims 7 and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Liao, in view of Thelin and in further view of Mandal, et al., U. S. Patent No. 6,983,465 (hereinafter "Mandal").

Given that claims 7 and 19 are dependent claims with respect to claims 1 and 13 and add additional limitations, Applicant submits that claims 7 and 19 are not obvious in view Liao, Thelin, and Mandal under 35 U.S.C. §103(a) for the reasons stated above.

Claims 8, 10, 12 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Liao in view of Rowlands, U. S. Patent No. 6,748,492 (hereinafter "Rowlands").

The Office Action, stated in part:

> Rowlands teaches if data is to be inserted into the cache as pinned data, inserting the data into a line from the pool for pinned data; marking the line as allocated by modifying metadata associated with the line (co1.9, lines 42-53); determining the set to which the line belongs using a mapping based on the tag associated with the line; removing the line from the pool for pinned data; and adding the line to the set (co1.9, lines 47-52).

(Office Action mailed 9/17/2007, page 10).

Applicant respectfully disagrees with the Office Action's assertion. For example, claim 8, as amended, reads as follows:

> For a whole number N, in an N-way set associative non-volatile disk cache, a method comprising:
> reserving a predetermined number of lines for pinned data and organizing them into a pool of lines for pinned data;
> distributing the remaining lines in the cache into N dynamic data structures of approximately the same size to represent the N sets of the cache;
> if data is to be inserted into the cache as pinned data, inserting the data into a line from the pool for pinned data;
> marking the line as allocated by modifying metadata associated with the line;
> **determining the set to which the line belongs using a mapping based on the tag associated with the line;**
> **removing the line from the pool for pinned data**; and
> **adding the line to the set<u>, wherein a constant number of non-pinned lines are maintained within the set</u>**.

(Claim 8) (emphasis added).

Applicant respectfully submits that the combination of Liao and Rowlands fails to disclose the limitations of claim 8. Applicant renews the argument from above that Liao, and thus the combination, does not teach reserving a first number of unallocated lines in the cache for pinned data.

Furthermore, the combination does not teach or suggest determining the set to which a line of pinned data belongs using a mapping based on the tag associated with the line. Rowlands, and thus the combination, teaches, in the citation provided by the Office Action, "replacement circuit 44 may be configured to select the way to be evicted." (Rowlands, col. 9, lines 48-49). Rowlands teaches a cache "configured to receive direct access transactions" which explicitly specify a way of the cache. (Rowlands, Abstract). However, Applicant submits that the Office Action has failed to point out where Rowlands teaches determining the set to which a line of pinned data belongs using a mapping based on the tag associated with the line.

Additionally, Applicant submits that the combination fails to teach or suggest removing the line from the pool for pinned data and adding the line to the set, wherein a constant number of non-pinned lines are maintained within the set. Rowlands teaches evicting or overwriting data within a way rather than removing a line from a reserved pool, adding it to the set determined by the above-discussed mapping, and maintaining a constant number of non-pinned lines within that set. (Rowlands, Col. 9, lines 42-55 and Col. 13 lines 41-50).

Accordingly, Applicant respectfully requests withdrawal of the rejections of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Liao and Rowlands.

The Office Action rejected claims 10, 12 and 20 using the same language as above for the rejection of claim 8. Although amended claims 10, 12 and 20 are each unique and different from claim 8, they contain limitations similar to claim 8 and thus are patentable over Liao and Rowlands for at least the reasons stated

above. Accordingly, Applicant respectfully requests withdrawal of the rejections of claims 10, 12 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Liao and Rowlands.

Claims 9, 11 and 21 are rejected under 35 U. S. C. §103(a) as being unpatentable over Liao, in view of Rowlands and in further in view of Wong.

Given that claims 9, 11 and 21 are dependent claims with respect to claims 8, 10 and 20 and add additional limitations, Applicant submits that claims 9, 11 and 21 are not obvious in view Liao, Rowlands, and Wong under 35 U.S.C. §103(a) for the reasons stated above.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the claim rejections.

CONCLUSION

Applicant respectfully submits that in view of the amendments and arguments set forth herein, the applicable rejections have been overcome. Applicants reserve all rights under the doctrine of equivalents.

Pursuant to 37 C.F.R. 1.136(a)(3), Applicant hereby requests and authorizes the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 02-2666.

If a telephone conference would facilitate the prosecution of this application, Examiner is invited to contact Ryan W. Elliott at (408) 720-8300.

Respectfully Submitted,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP

Date: ___4/23/08_____   _____/Ryan W. Elliott/_____
                              Ryan W. Elliott
                              Reg. No. 60,156

1270 Oakmead Pkwy
Sunnyvale, CA 94085-4040
(408) 720-8300